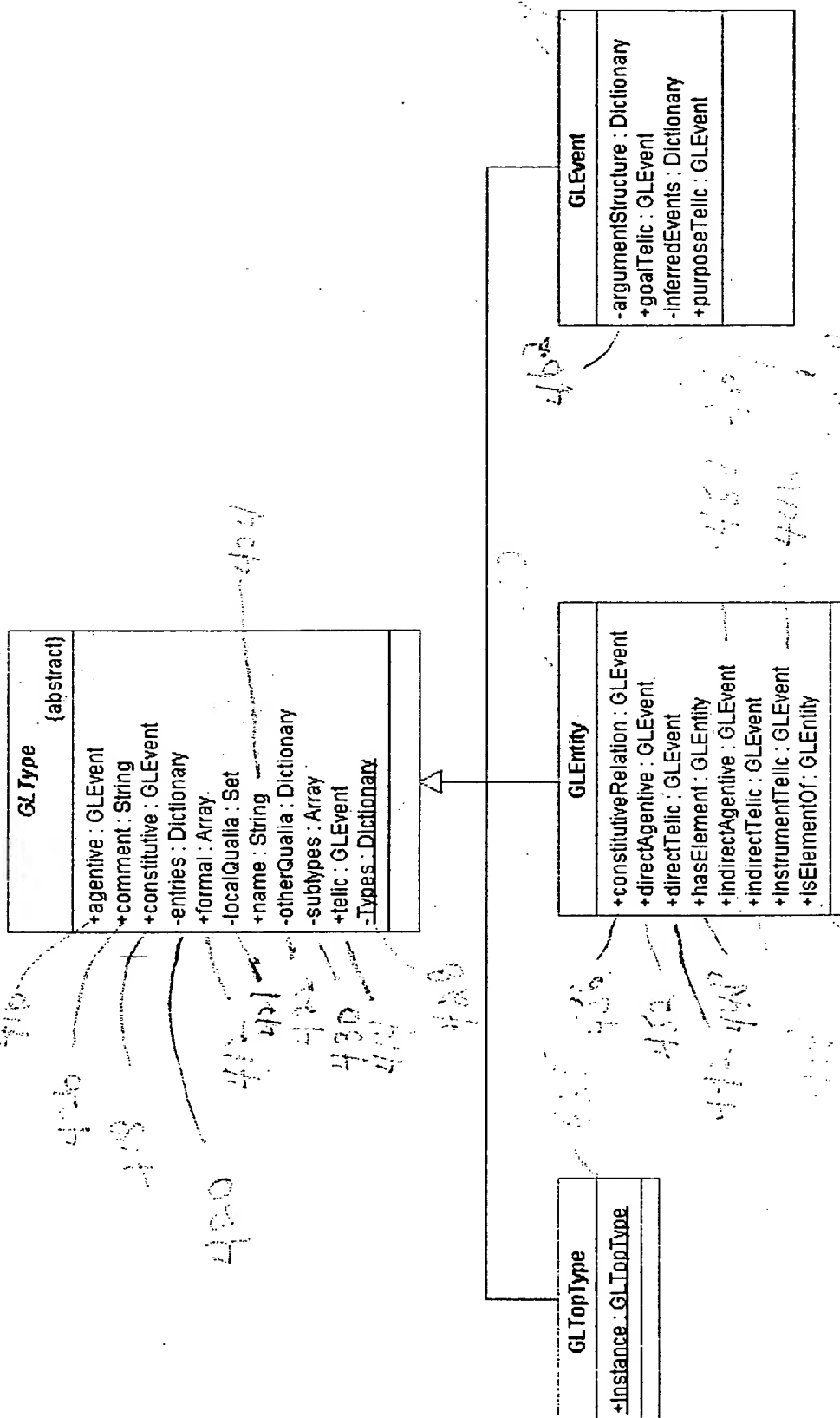


FIG. 2

[illegible]

Loading Saving Change Log Views Tools									
Create Type	Edit Type	Delete Type	Delete Sub	Rename Type	Change Super	Find Type			
<b>ToolType *</b> <b>Entity *</b> 524 <b>Group *</b> <b>Immaterial Entity *</b> 522 512 <b>Individuated Entity *</b> <b>Area *</b> <b>Celestial Body *</b> 520 <b>Individuated Functional Entity *</b> <b>Individuated Instrumental Entity *</b> 516 514 <b>Communication Medium *</b> <b>Financial Instrument *</b>				<b>mutual fund *</b>					
<b>Mutual Fund *</b> <b>Payment Instrument *</b> <b>Individuated Tool Entity PartOf *</b> <b>Representational Artifact *</b> <b>Social Entity *</b> <b>Sound *</b> <b>Source *</b> <b>Virtual Object *</b> <b>Visual Image *</b> <b>Material Entity *</b>									
<b>Mutual Fund *</b> <b>"a Complex GLEntity" 550</b> <b>formal: #([Company]) [(Financial Instrument)]</b> <b>indirectAgentive: [(Found Activity)]</b> <b>directTelic: [(Business Activity)]</b> <b>*instrumentTelic: [(Invest Activity)]</b> <b>genre: [(Genre)]</b> <b>location: [(Locative Relation)]</b>				<b>mutual fund - 2</b> <b>"a CollocationalNounEntry"</b> <b>type: [(Mutual Fund)]</b> <b>name: mutual fund 540</b>					
Create	Edit	X-G-Mat	Copy	Rename	Delete	Multiple Del	Find	Change Type	Change Types

5106

Create Type	Edit Type	Delete Type	Delete Sub	Rename Type	Change Super	Find Type
<div><div><div><div>Come Into Contact Activity</div><div>Goal Directed Activity</div><div>Accommodation Activity</div><div>Assessment Activity</div><div>Assistance Activity</div><div>Attempt Activity</div><div>Business Activity</div><div>Audit Activity</div></div><div><div>Invest Activity</div><div>Choose Activity</div><div>Classify Activity</div><div>CoAgentive Activity</div><div>Collect Activity</div><div>Commit Activity</div><div>Communication Process</div><div>Encourage Activity</div><div>Entertainment Activity</div><div>Espionage Activity</div><div>Function Activity</div><div>Hospitality Activity</div><div>Imitation Activity</div><div>Investigate Activity</div><div>Lead Activity</div></div></div><div><div>Invest Activity</div><div>"a Simple GLEvent"</div><div>formal: #[[Business Activity]]</div><div>argumentStructure:</div><div>externalArgument: [[Legal Entity]]</div><div>theme: [[TopType]]</div></div><div><div>invest - 3</div><div>"a VertEntry"</div><div>type: [[Invest Activity]]</div><div>subjectRole: externalArgument</div><div>poRole: theme</div><div>poHead1: in</div></div></div>						

Fig 5

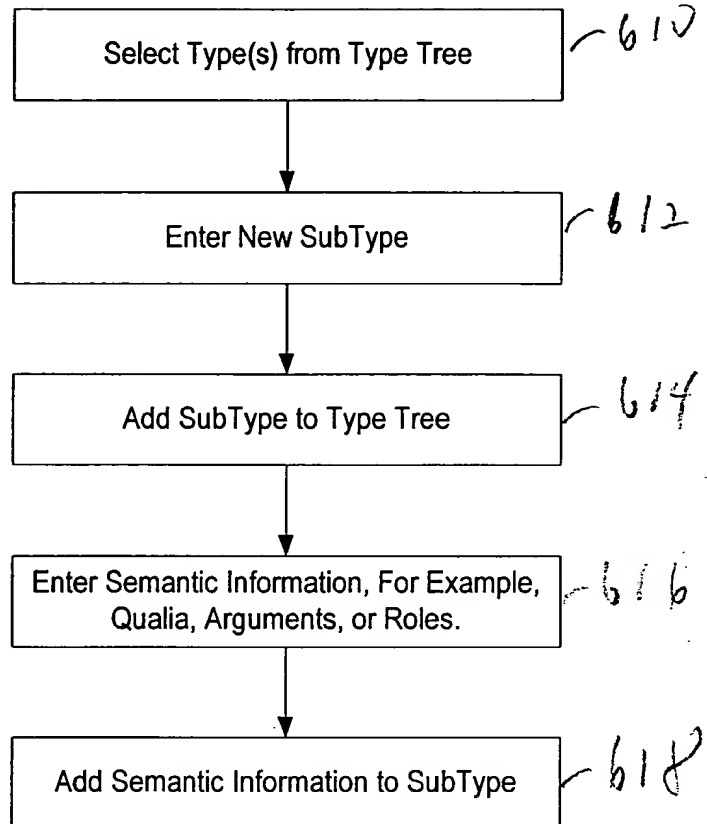


FIG. 6A

FIG. 6B

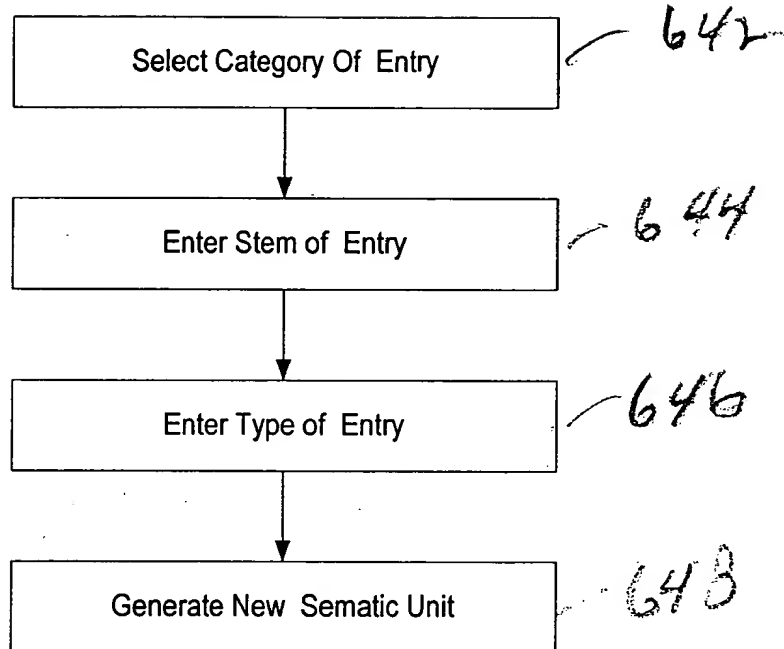


FIG. 6B

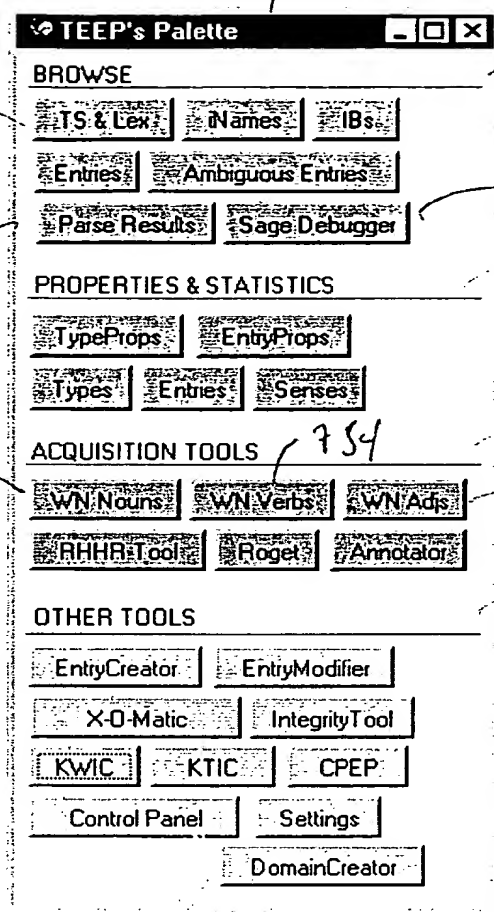


Fig 7



810 a

810b

IS and Lexicon Browser

Financial Instrument

formal: #([Individuated Instrumental Entity])

instrumentTelic: [[TopType]]

genre: [[Genre]]

location: [[Locative Relation]]

Company (Business)

"a Simple GLEntity"

formal: #([Institution])

IndirectAgentive: [[Found Activity]]

\*directTelic: [[Business Activity]]

F 15 8

910

914

912

916

918

920

Type Creator

select subclass and domain

Complex GLEntity

name

Mutual Fund

priority supertype

Company

default supertype

Financial Instrument

Create Cancel

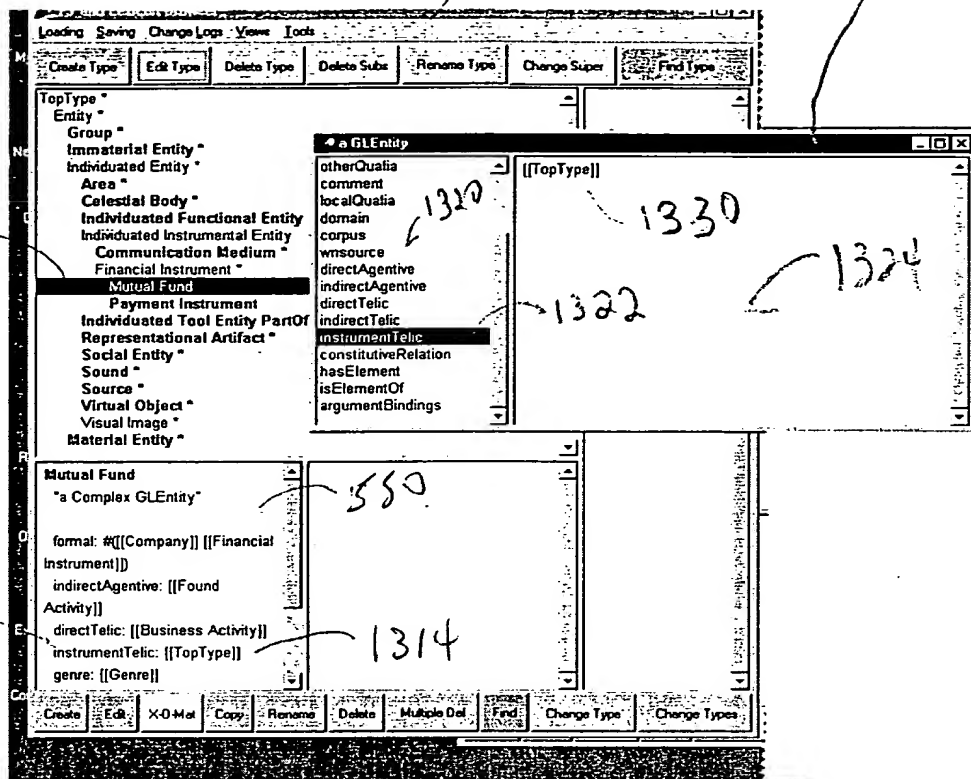
Fig. 9



210

Fig. 12

830



Fg 13

810a

File Edit View Tools

Loading Saving Change Logs Views Tools

Create Type	Edit Type	Delete Type	Delete Subs	Rename Type	Change Super	Find Type
-------------	-----------	-------------	-------------	-------------	--------------	-----------

TopType \*

Entity \*

Group \*

Immaterial Entity \*

Individuated Entity \*

Area \*

Celestial Body \*

Individuated Functional Entity

Individuated Instrumental Entity

Communication Medium \*

Financial Instrument \*

**Mutual Fund**

Payment Instrument

Individuated Tool Entity PartOf

Representational Artifact \*

Social Entity \*

Sound \*

Source \*

Virtual Object \*

Visual Image \*

Material Entity \*

**Mutual Fund**

"a Complex GLEntity"

formal: #([[Company]]) [[Financial Instrument]])

indirectAgentive: [[Found Activity]]

directTelic: [[Business Activity]]

\*instrumentTelic: [[Invest Activity]]

genre: [[Genre]]

location: [[Locative Relation]]

1012


550

540

1410

Create	Edit	X-O-Mat	Copy	Rename	Delete	Multiple Del	Find	Change Type	Change Types
--------	------	---------	------	--------	--------	--------------	------	-------------	--------------

Fig 14



Select category of entry

- AdjectiveEntry
- AdverbEntry
- CollocationalAdjecti
- CollocationalAdverb
- CollocationalDeterm
- CollocationalIdentifie
- CollocationalNounE**
- CollocationalPrepEr
- CollocationalPronou
- CollocationalProperl
- CollocationalTitleEn
- CollocationalVerbEr
- DayOfWeekEntry
- DeterminerEntry
- IdentifierEntry
- MonthEntry
- NounEntry
- NumberEntry
- OrdinalEntry
- PrepEntry
- PronounEntry
- ProperNounEntry
- TitleEntry
- VerbEntry

OK Cancel

1518

1512

1516

1514

Fig. 15

810 a

514-

550'

1540

1630

1632

Fig 16

[illegible]

8100

Loading Saving Change Logs Views Tools

Create Type	Edit Type	Delete Type	Delete Subs	Rename Type	Change Super	Find Type
-------------	-----------	-------------	-------------	-------------	--------------	-----------

TopType \*

Entity \*

Group \*

Immaterial Entity \*

Individuated Entity \*

Area \*

Celestial Body \*

Individuated Functional Entity

Individuated Instrumental Entity

Communication Medium \*

Financial Instrument \*

Mutual Fund \*

Payment Instrument

Individuated Tool Entity PartOf

Representational Artifact \*

Social Entity \*

Sound \*

Source \*

Virtual Object \*

Visual Image \*

Material Entity \*

mutual fund

1710

Mutual Fund

"a Complex GLEntity"

formal: #([[Company]]) [[Financial Instrument]])

indirectAgentive: [[Found Activity]]

directTelic: [[Business Activity]]

\*instrumentTelic: [[Invest Activity]]

genre: [[Genre]]

location: [[Locative Relation]]

mutual fund - 2

"a CollocationalNounEntry"

type: [[Mutual Fund]] - 542

name: mutual fund

1722

Create	Edit	X-O-Mat	Copy	Rename	Delete	Multiple Del	Find	Change Type	Change Types
--------	------	---------	------	--------	--------	--------------	------	-------------	--------------

1312

Fig 17



1210

TS and Lexicon Browser

Loading Saving Change Logs Views Tools

Create Type Edit Type Delete Type Delete Subs Rename Type Change Super Find Type

Come Into Contact Activity \*  
 Goal Directed Activity \*  
 Accomodation Activity \*  
 Assessment Activity \*  
 Assistance Activity \*  
 Attempt Activity \*  
 Business Activity \*  
 Audit Activity \*  
 Invest Activity \*  
 Choose Activity \*  
 Classify Activity \*  
 CoAgentive Activity \*  
 Collect Activity \*  
 Commit Activity \*  
 Communication Process \*  
 Encourage Activity \*  
 Entertainment Activity \*  
 Espionage Activity \*

Invest Activity  
 "a Simple GLEvent"  
 formal: #([[Business Activity]])  
 argumentStructure:  
 externalArgument: [[Legal Entity]]  
 theme: [[TopType]]

invest - 3  
 "a VerbEntry"  
 type: [[Invest Activity]]

invest

Create Edit X-O-Mat Copy Rename Delete Multiple Del Find Change Type Change Types

Fig 18

614

2010

2020

2030

2028

1920

1920

Invest Activity

"a Simple GLEvent"

format: #([Business Activity])

argumentStructure:

externalArgument: ([Legal Entity])

theme: ([TopType])

Invest - 3

"a VerbEntry"

type: ([Invest Activity])

640

635

630

accept

cancel

Create Edit X-OMat Copy Rename Delete Multiple Del Find Change Type Change Types

Start Works Visual TEEP Lexicon Explor Euler TS an patent Parse TS an TS an a Ve... 3:56 PM

Fig 19

1210

Loading Saving Change Logs Views Tools

Create Type
Edit Type
Delete Type
Delete Subs
Rename Type
Change Super
Find Type

Relational Process \*

Abstract Entity Process \*

Adventurous Activity \*

Causation Activity \*

Come Into Contact Activity \*

Goal Directed Activity \*

Accommodation Activity \*

Assessment Activity \*

Assistance Activity \*

Attempt Activity \*

Business Activity \*

Audit Activity \*

**Invest Activity \***

Choose Activity \*

Classify Activity \*

CoAgentive Activity \*

Collect Activity \*

Commit Activity \*

Communication Process \*

Encourage Activity \*

Entertainment Activity \*

Espionage Activity \*

**a GLEvent**

self

formal

agentive

telic

constitutive

otherQualia

comment

localQualia

domain

corpus

wnsource

goalTelic

purposeTelic

**argumentStructure**

inferredEvents

ArgumentDictionary

#amount -> [[Money]]

#externalArgument -> [[Legal Entity]]

#theme -> [[TopType]]

**Invest Activity**

\*a Simple GLEvent\*

formal: #([[Business Activity]])

argumentStructure:

\*amount: [[Money]]

externalArgument: [[Legal Entity]]

theme: [[TopType]]

Fig 20

2310

TS and Lexicon Browser

Loading Saving Change Logs Views Tools

Create Type	Edit Type	Delete Type	Delete Subs	Rename Type	Change Super	Find Type
Africa * American Country * Asia * Australia and Oceania * Country with ConstitutiveRelation Country with DirectAgentive Country with DirectTelic Country with HasElement Country with IndirectAgentive Country with IndirectTelic Country with InstrumentTelic Country with IsElementOf Europe * Eastern * European Mountains * Western Europe * Austria * Benelux Countries * France * France Region * French City * Germany *						france french la patrie monaco monaco
France (France) "a Simple GLEntity" formal: #([Western Europe]) constitutive: ([Origin Relation]) genre: ([Genre]) location: ([Locative Relation])						french - 1 "an AdjectiveEntry" type: ([France])

2320

2322

2342

2330

2344

2340

2346

2332

2330

Create Edit X O-Mat Copy Rename Delete Multiple Del Find Change Type Change Types

Fig 21

2310

2410

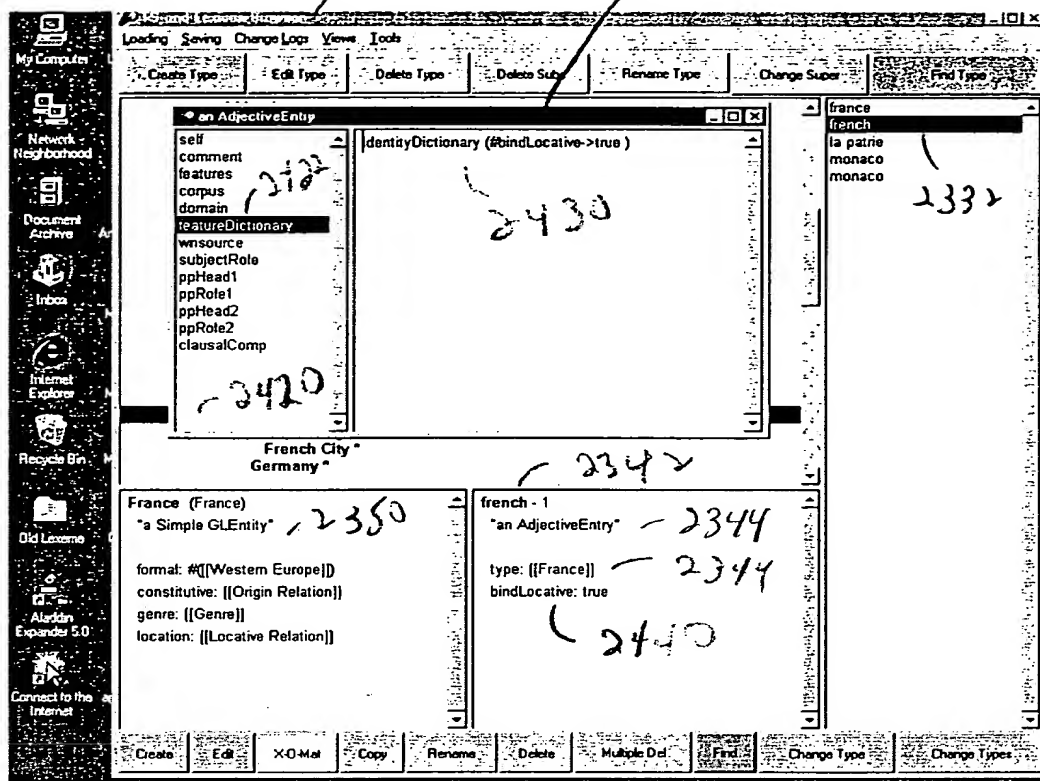


Fig 22

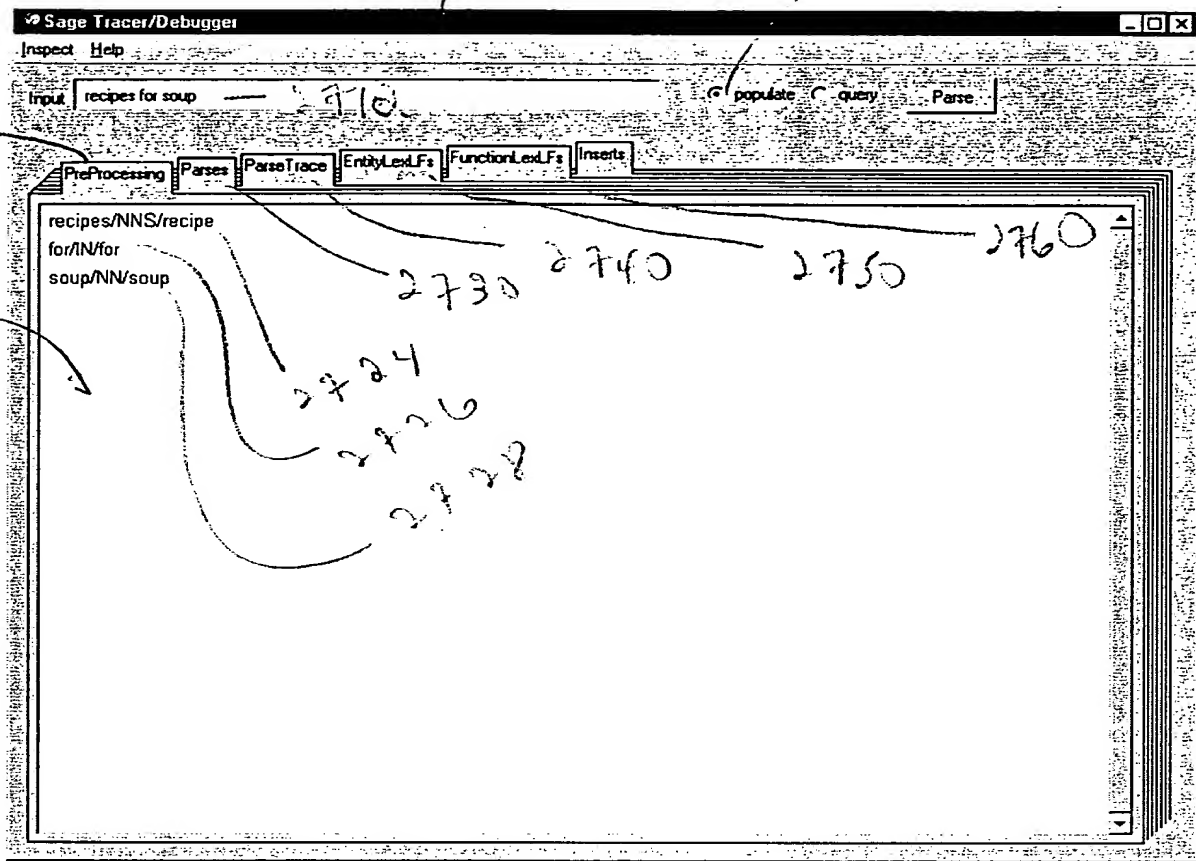


Fig 23

2710 2822

130

Sage Tracer/Debugger

Inspect Help

Input: recipes for soup

populate query Parse

PreProcessing Parse ParseTrace EntityLexLFs FunctionLexLFs Inserts

recipies for soup

2812 2810a

active edges inactive edges

<Edge 1-4: Utterance => NP >  
 <Edge 1-4: NP => NP PP >  
 <Edge 1-2: Utterance => NP >  
 <Edge 1-2: NP => CoreNP >  
 <Edge 1-2: CoreNP => NBar >  
 <Edge 1-2: NBar => N >  
 <Edge 1-2: N => N >

2824 2820a 2830 2832

String: recipes for soup

Rule: <Utterance => NP>

|| UtteranceLexLF  
 type: [[Question]]  
 string: recipes for soup  
 illocutionaryForce: Selection  
 content: || EntityLexLF  
 type: [[Recipes]]  
 value: recipe  
 directTatic: || FunctionLexLF  
 type: [[Prepare Food Activity]]  
 externalArgument: || EntityLexLF  
 type: [[Recipes]]  
 value: recipe ||  
 theme: || EntityLexLF

Utterance  
 NP  
 NP  
 CoreNP  
 NBar  
 recipes  
 PP  
 for  
 NP  
 CoreNP  
 NBar  
 soup

2850a 2840a

2710

2920

Sage Tracer/Debugger

Inspect Help

Input: recipes for soup

populate query Parse

PreProcessing Parse ParseTrace EntityLexLFs FunctionLexLFs Inserts

recipies for soup

2910 2810b

active edges inactive edges

<Edge 1-2: AdjBar => NBar . Punctuation AdjBar >  
 <Edge 1-2: AdjBar => NBar . AdjBar >  
 <Edge 1-2: NP => NP . ComplementVP >  
 <Edge 1-2: NP => NP . RelS >  
 <Edge 1-2: NP => NP . Punctuation Conj NP >  
 <Edge 1-2: NP => NP . Punctuation NP >  
 <Edge 1-2: NP => NP . Conj NP >  
 <Edge 1-2: NP => NP . PP >  
 <Edge 1-2: DeterminerGroup => NP . POS >  
 <Edge 1-2: ComplementS => NP . VP >  
 <Edge 1-2: RootS => NP . VP >  
 <Edge 1-2: Utterance => NP . EndPunct >

2820b 2930

String: recipes

Rule: <NP => NP PP (TakesPPComplement) (PPComplementForNP)>

|| EntityLexLF  
 type: [[Recipes]]  
 value: recipe  
 directTatic: || FunctionLexLF  
 type: [[Prepare Food Activity]]  
 externalArgument: || EntityLexLF  
 type: [[Recipes]]  
 value: recipe ||  
 theme: || EntityLexLF  
 type: [[Soup]]  
 value: soup || ||

NP  
 NP  
 CoreNP  
 NBar  
 recipes

2950b 2940b

Fig 25

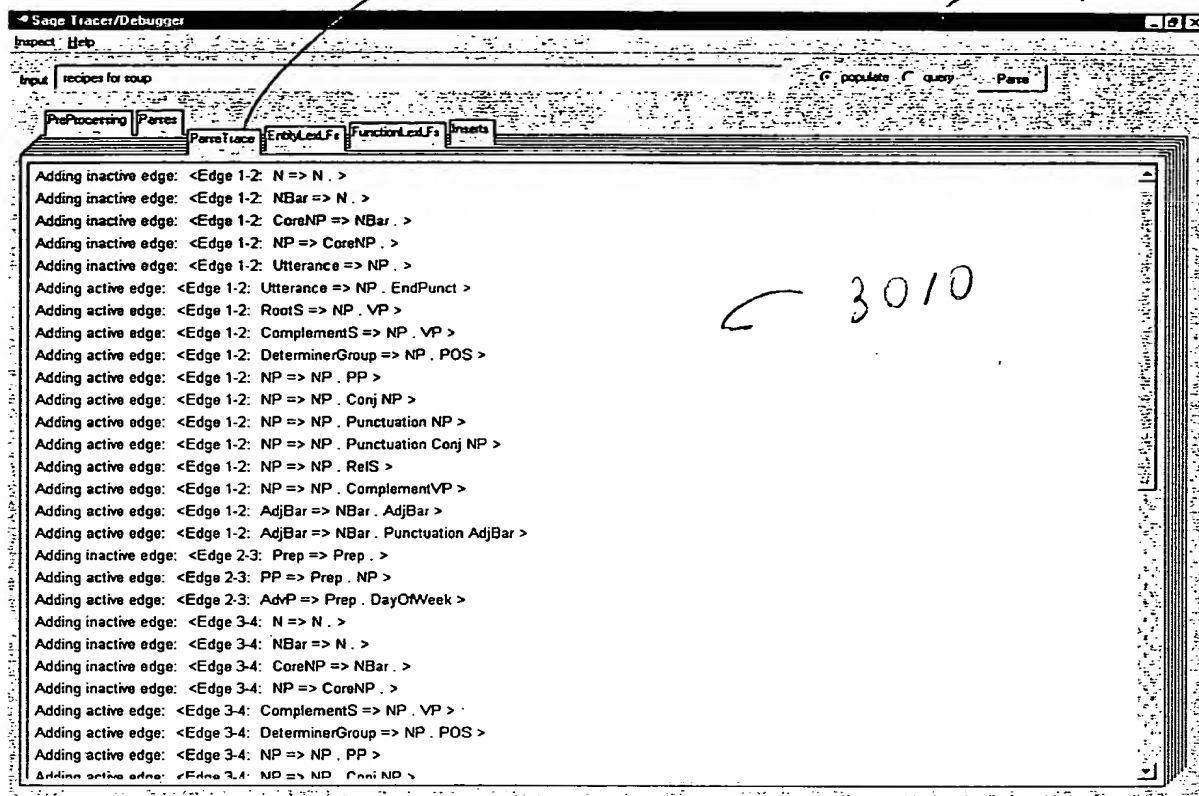


Fig 26a



The screenshot displays the Sage Tracer/Debugger interface. At the top, there are tabs for 'Inspect' and 'Help'. Below them, a search bar contains the text 'recipes for soup'. To the right of the search bar are buttons for 'populate', 'query', and 'Parse'. Below the search bar is a row of tabs: 'PreProcessing', 'Parse', 'ParseTrace', 'EntityLexFs', 'FunctionLexFs', and 'Inserts'. The 'ParseTrace' tab is currently selected, showing a list of grammar rules and their matches. The rules are listed on the left, and the matches are listed on the right. The matches are separated by a vertical line. The matches are as follows:

- Adding inactive edge: <Edge 3-4: NP => CoreNP . >
- Adding active edge: <Edge 3-4: ComplementS => NP . VP >
- Adding active edge: <Edge 3-4: DeterminerGroup => NP . POS >
- Adding active edge: <Edge 3-4: NP => NP . PP >
- Adding active edge: <Edge 3-4: NP => NP . Conj NP >
- Adding active edge: <Edge 3-4: NP => NP . Punctuation NP >
- Adding active edge: <Edge 3-4: NP => NP . Punctuation Conj NP >
- Adding active edge: <Edge 3-4: NP => NP . RelS >
- Adding active edge: <Edge 3-4: NP => NP . ComplementVP >
- Matching <Edge 2-3: PP => Prep . NP > with <Edge 3-4: NP => CoreNP . >
- Adding inactive edge: <Edge 2-4: PP => Prep NP . >
- Matching <Edge 1-2: NP => NP . PP > with <Edge 2-4: PP => Prep NP . >
- Adding inactive edge: <Edge 1-4: NP => NP PP . >
- Adding inactive edge: <Edge 1-4: Utterance => NP . >
- Adding active edge: <Edge 1-4: Utterance => NP . EndPunct >
- Adding active edge: <Edge 1-4: RootS => NP . VP >
- Adding active edge: <Edge 1-4: ComplementS => NP . VP >
- Adding active edge: <Edge 1-4: DeterminerGroup => NP . POS >
- Adding active edge: <Edge 1-4: NP => NP . PP >
- Adding active edge: <Edge 1-4: NP => NP . Conj NP >
- Adding active edge: <Edge 1-4: NP => NP . Punctuation NP >
- Adding active edge: <Edge 1-4: NP => NP . Punctuation Conj NP >
- Adding active edge: <Edge 1-4: NP => NP . RelS >
- Adding active edge: <Edge 1-4: NP => NP . ComplementVP >
- Adding active edge: <Edge 3-4: AdjBar => NBar . AdjBar >
- Adding active edge: <Edge 3-4: AdjBar => NBar . Punctuation AdjBar >
- Adding active edge: <Edge 3-4: NBar => N . NBar >

Handwritten notes 'C 3020' are visible on the right side of the interface.

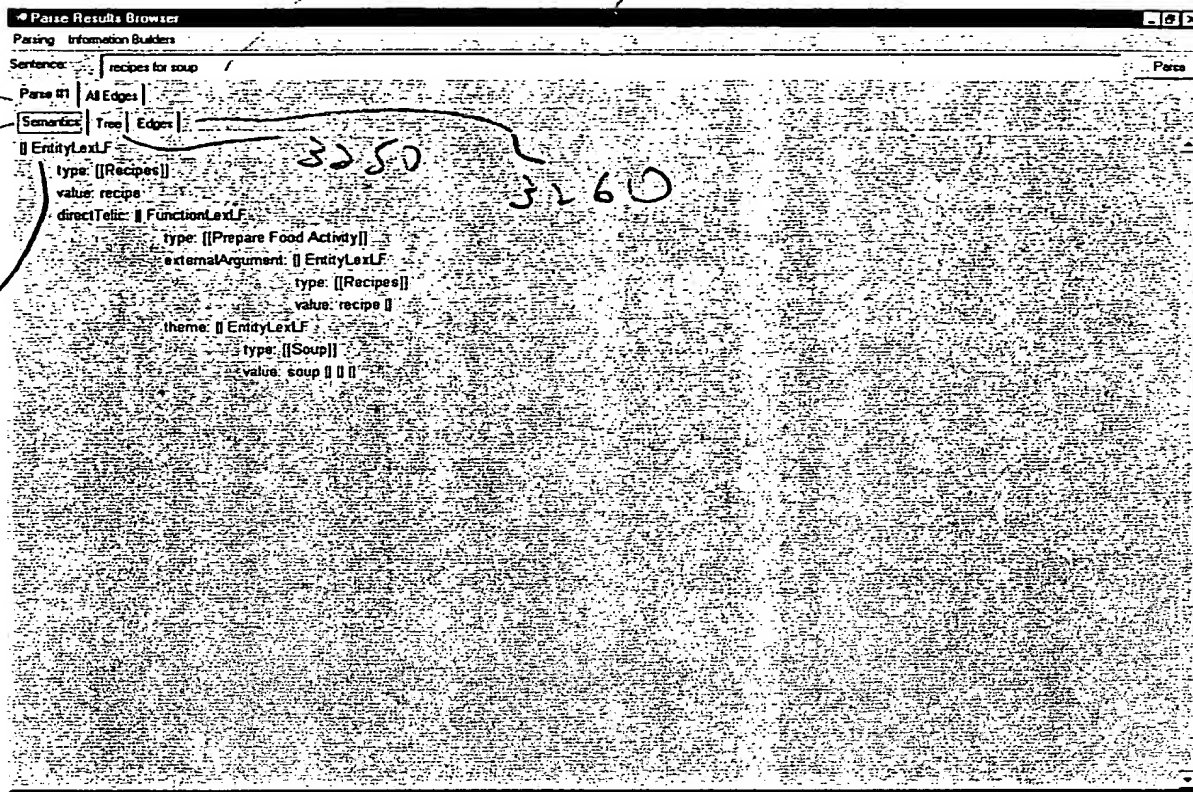


Fig 27

3210

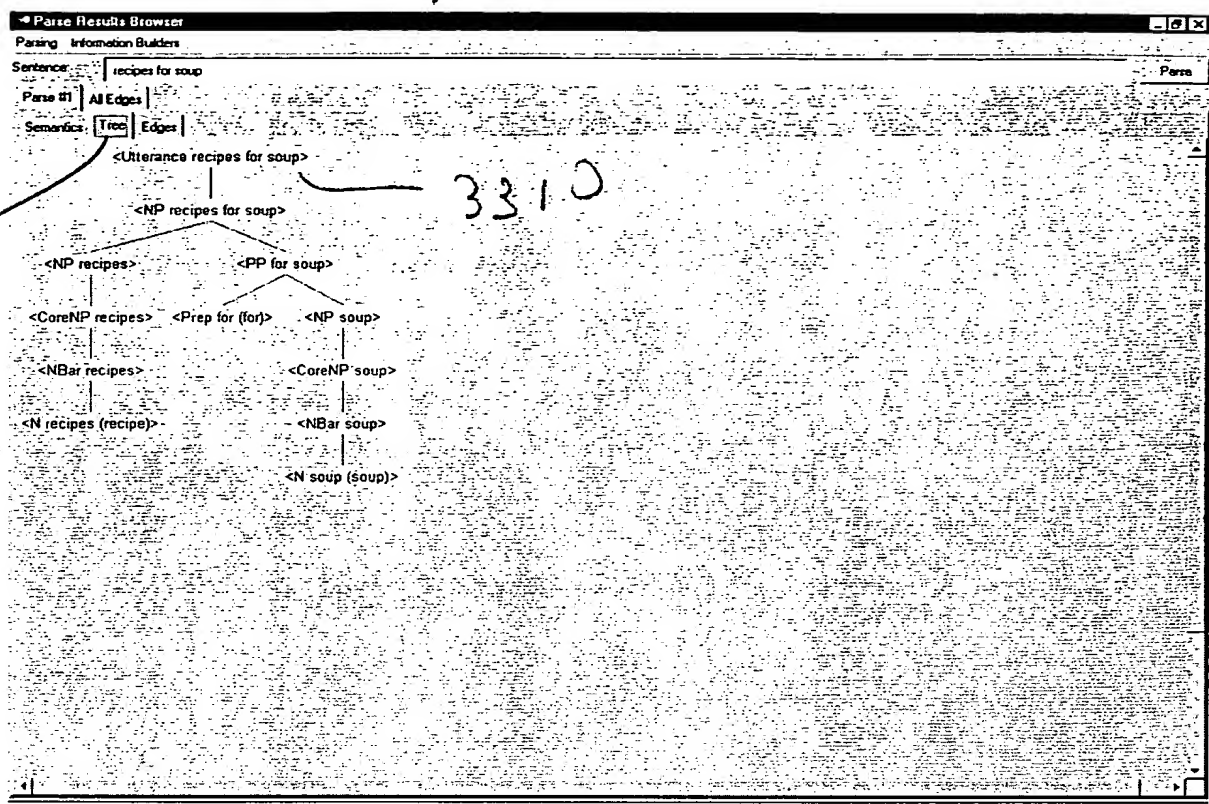


Fig 28

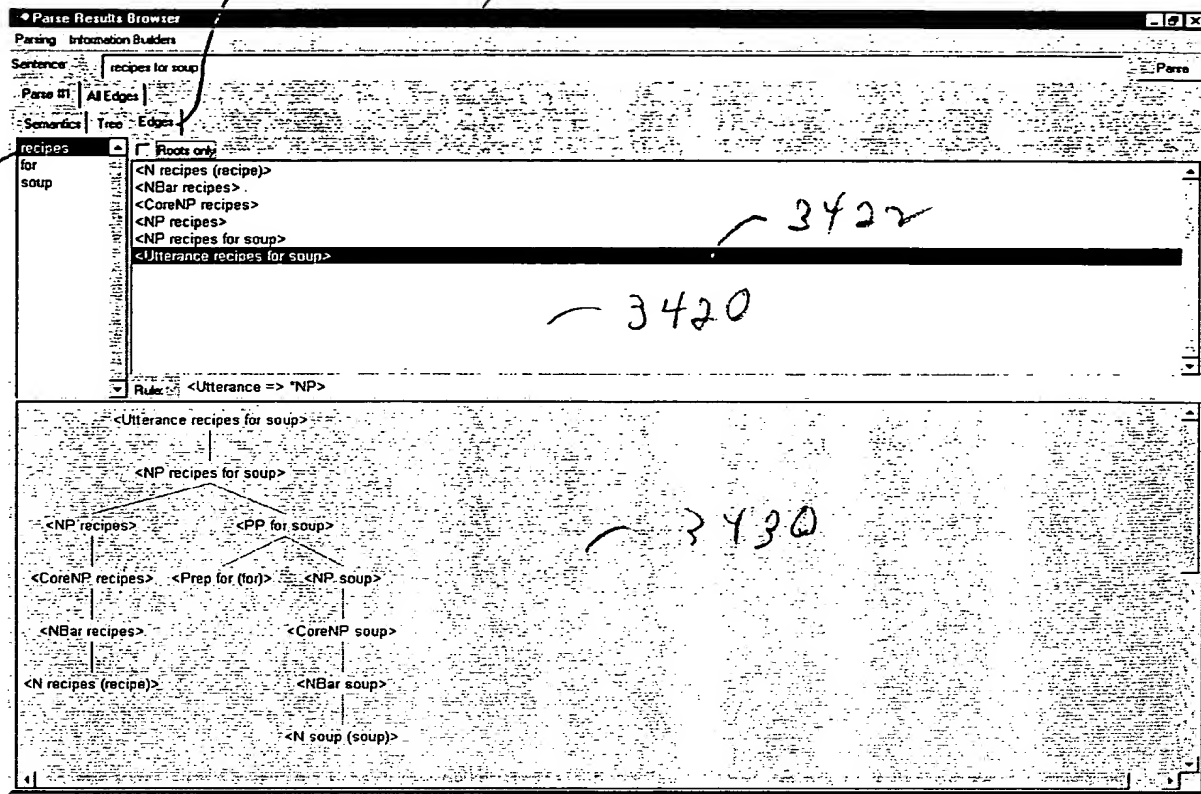


Fig 29

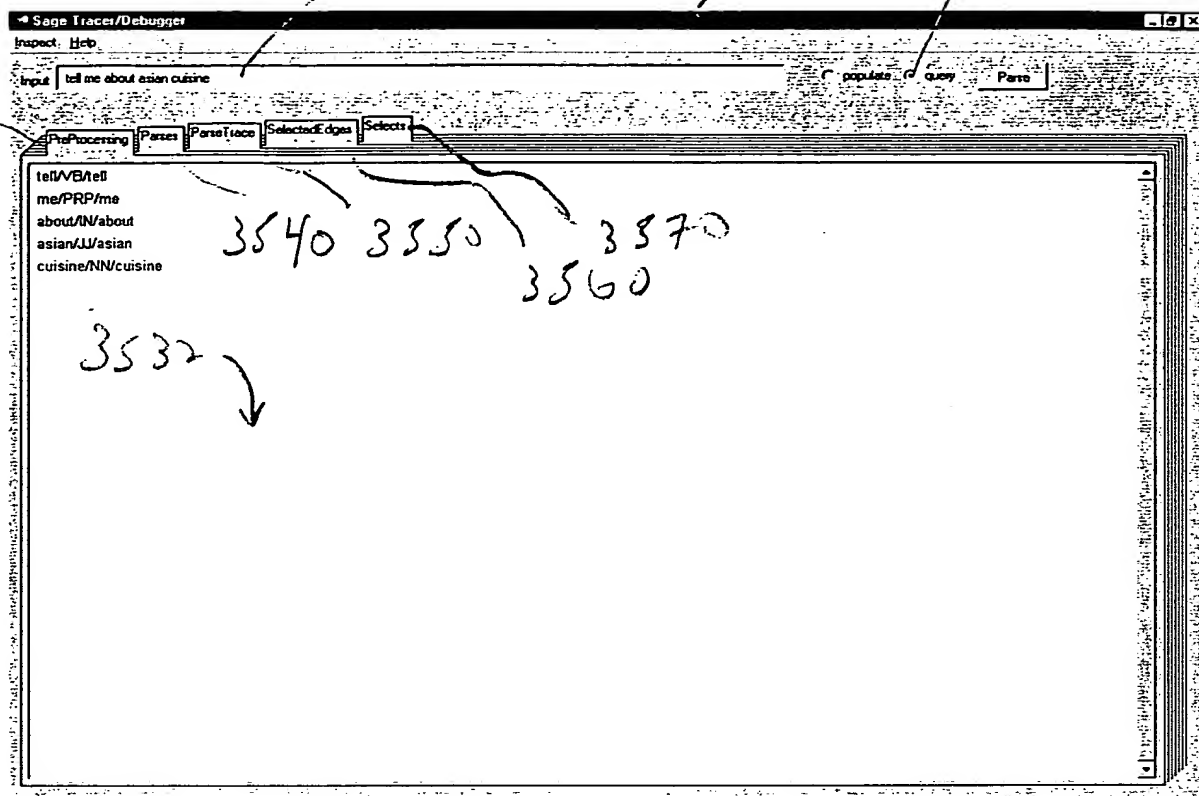


Fig 30

3520 3560 3510

Sage Tracer/Debugger

Input: tell me about asian cuisine

Populate query

Parse

PreProcessing Parse Parse Trace Select edges Select

Edge 1-6: Utterance => VP

3705

Rule: <Utterance => VP (Imperative) (ImperativeHead)>

EntityLexLF

type: [[Food]]

value: cuisine

location: [[FunctionLexLF]]

type: [[Locative Relation]]

externalArgument: [[EntityLexLF]]

type: [[Food]]

value: cuisine

location: [[EntityLexLF]]

type: [[Asia]]

value: Asia

Utterance

VP

VP

VBar

tell me about

NP

CoreNP

NBar

AdjBar

asian

NBar

cuisine

3710

3720

3730

Edge 1-6: Utterance => VP .>

Edge 1-6: VP => VP NP .>

Edge 1-4: VP => VBar .>

Edge 1-4: VBar => V .>

Edge 1-4: V => V .>

Edge 4-6: NP => CoreNP .>

Edge 4-6: CoreNP => NBar .>

Edge 4-6: NBar => AdjBar NBar .>

Edge 4-5: AdjBar => Adj .>

Edge 4-5: Adj => Adj .>

Edge 5-6: NBar => N .>

Edge 5-6: N => N .>

Fig 31